
UNIT 2 INDUSTRY

Structure

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2.1 INTRODUCTION

The growth of industry is usually considered an important and essential element in the process of economic growth. It is considered as the secondary sector of development. It contributes substantially to economic growth of a country. In this unit you will study details of industry sector.

After reading this unit, you will be able to

- explain the meaning of industry
- discuss industrialization and economic growth
- establish relationship between agriculture and industry
- discuss industrialization in the world and Indian context
- explain industrial development in India after independence
- spell out the causes of industrial backwardness.

2.2 WHAT IS INDUSTRY?

Industry, or the industrial sector, is one of the three broad sectors into which any economy may be divided, the other two being agriculture and services. A parallel, but not identical division is between the primary, secondary and tertiary sectors of the economy. In this alternative classification, the sector corresponding to industry would be the secondary sector. In any period, each of the three sectors produces a lesser or greater part of the total output of any country, and a greater or lesser part of that country's labour force is engaged in the production of each sector. The distribution of the total production of the economy (GDP) between the three sectors is referred to as its output structure and that of the labour force as its employment structure.

Of course, in any economy, a very large variety of distinct production activities are undertaken. In the usual or standard classification scheme followed the world over, including in India, these are grouped into nine different activities or sectors.

These nine sectors, too, are referred to as industries, and the classification scheme is called an industrial classification scheme. However, it should be remembered that we are not, in this unit, referring to this general use of the term, industry. In common usage also, the term, industry is used in this broader sense, as, for example, when people talk about the film industry, or, of the financial services industry. Rather, our concern will be with the more specific use, wherein are included only some and not all of the industries. The industrial sector, in this sense, can be divided into three broad groupings.

The division of the economy into agriculture-industry-services or primary-secondary-tertiary sectors is based on some criteria rather than being entirely arbitrary. Differences in the nature of the products produced in these sectors, the distance of their production process from the natural environment, etc, are some of these criteria. Agriculture and mining are, thus, primary, because they involve extracting or harvesting the earth's products, while the secondary sector involves further processing of some of these primary products into other products. Tertiary activities cannot, however, be placed in a similar continuum as a third stage of processing. Rather, they are chiefly distinguished by the fact that their 'products' tend to be intangible (lacking a physical form) and involve providing some kind of service to the user. Thus, the services sectors do not produce goods like the other two major sectors do.

However, in practice, the demarcation of the industrial or secondary sector from the other two sectors has never been an easy matter. For one, certain activities may exhibit features of more than one sector. Mining for instance is a primary activity as it involves the extraction of natural resources, and in a sense, is more primary than agriculture because of the fact that the resources extracted are exhaustible. The method of that extraction, however, is more akin to industrial production than agricultural activity, and industry is also the major consumer of the mining sector's products. At the other end are cases like the railways, whose 'product' (i.e., transport) is intangible, like that of many services, and like many of them, its production and consumption are simultaneous. The production activity of the railways, however, is closer to manufacturing. Construction, too, has a similarly ambiguous character. While this activity may result in something that has a physical form (like a building or a bridge) it is not that final result, but the activity giving rise to it, which is like a service rather than a good, that is more often sold by the sector as its product.

For these reasons, it is not surprising that there has been a lack of unanimity about the sub-sectors to be included in the industrial or secondary sector. Thus, Simon Kuznets included transport and communication in industry, while Colin Clark put even construction in services. The general practice, promoted by the United Nations, however, has been to include, within industry, the following four sub-sectors.

- i) **Mining and Quarrying** – this covers the activity of extraction of natural resources like metals, coal, and oil, and those like stone quarrying.
- ii) **Manufacturing** – this covers the activities involving the mechanical or chemical transformation of organic or inorganic substances into products or the assembly of manufactured components into products, whether these are done by power driven machinery or by hand, and in a factory or at home. These include: production of food and beverage products like wheat

flour, processed tea, and aerated drinks; wood products like furniture; textile products like yarn, cloth and garments; leather products like footwear and bags; paper and paperboard; rubber and plastic products like tyres, tubes, and toys; mineral products like cement and glass; refined petrol and lubricants; chemical products like synthetic fibres, fertilizers and pharmaceuticals; production of metals like steel and aluminium and metal products like steel utensils; machinery, equipment, and apparatus like industrial machinery, transformers, televisions and computers; and transport equipment like bicycles, cars, and trucks.

- iii) **Electricity, Gas, Water Supply** – the economic activities relating to generation, transmission, and distribution of electricity; the manufacture and distribution of gas; and the activities associated with collection, purification, and distribution of water.
- iv) **Construction** –activities relating to construction of buildings (dwellings, office buildings, stores, etc.) and civil engineering works (roads, bridges, ports, irrigation works, power and industrial plants, pipelines, airports, etc.).

While India's National Accounts Statistics (NAS, CSO) contain data for all four of these segments of industry, the Index of Industrial Production (IIP) covers only three sectors – mining, manufacturing, and electricity. The construction sector is excluded by the IIP, primarily due to constraints in data availability. There is also a use-based classification of the industries included in the IIP, where they are divided into four groups based on the nature of use of their products: **basic** goods (like cement, steel, fertilizers, electricity, and diesel); **intermediate** goods (like textile yarns and fibres, electronic components, automobile components, paints and pipes); **capital** goods (like pumps, compressors, motors, engines, industrial machinery and machine tools, electric transformers, computers, and commercial vehicles), and; **consumer** goods, with the last being further subdivided into consumer durables (like cars, motorcycles, televisions, and watches) and consumer non durables (like paper, lamps and tubes, edible oils, sugar, and soaps).

It should be kept in mind that the different views about the specific composition of the industrial sector notwithstanding, manufacturing is universally regarded as the most important component of the sector. The manufacturing sector is, itself, internally very diverse, more so than any other segment of industry. Taking into account the differences between the varieties of manufacturing industries can often also be more important than those between manufacturing and the others.

In the Indian case, there is yet another division within the industrial, and particularly manufacturing sectors, that is important. This is, the division between their organized and unorganized components. The organized segment includes overlapping components like public sector enterprises, registered factories, and joint-stock companies in the industrial sector; the unorganized sector includes households and unregistered private enterprises engaged in industrial production.

Now that you have a fairly good idea about industries and their sub-sectors, please answer the following question in *Check Your Progress-1*.

Check Your Progress 1

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit

1) What is meant by the industrial sector of an economy?

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2.3 INDUSTRIALIZATION AND ECONOMIC GROWTH

Industrialization has historically been an ingredient element of the process that Simon Kuznets terms, ‘modern economic growth’ – the sustained growth of output and per capita income of a country at a relatively rapid pace. This kind of growth has been observed in the world only in the last two and a half centuries. The countries which initially experienced such growth are those that are now termed developed countries. These countries are spread mainly over North America and Western Europe with Japan being the sole representative of this group from the Asian continent. The developing countries, are primarily in Latin America, Africa and Asia, and in which live more than three-fourths of the world’s population, are those that were, at least till the middle of the 20th century, bypassed by the process of modern economic growth. Whether this was despite, or because of the fact that the countries that were bypassed were often linked to those where such growth did take place (like India and Britain) is an issue that is still being debated. We shall not enter into that debate here. Suffice it to say here that the countries which came to constitute the group of developing countries were, in the initial two centuries of modern economic growth, mainly exporting primary commodities to the countries which experienced industrialization.

The term industrialization is associated with the emergence and expansion of the mechanized large scale factory system of production. It is a process characterized by rapid growth of per capita output and an increase in the share of the industrial sector in output and employment. It involves growth as well as structural change, these two aspects being related to each other. The industrial sector’s share in the total output and employment increases during the course of industrialization because production and employment in that sector grow faster than the average for the economy as a whole.

What is the precise relationship between industrialization and rapid economic growth? A typical pre-industrial economy is primarily an agrarian economy - one where agriculture is the major sector of the economy. This means that the larger part of the labour force in such an economy is engaged in agricultural production, and most of the output is produced in that sector. While such an economy also has an ‘industrial sector’, its share in the economy is small and production is mostly of the simple cottage industry type. In such an economy,

the rate of growth of the economy as a whole will greatly be influenced by the growth rate of the agricultural sector, because of its sheer weight in the economy, and this weight will remain high so long as the other sectors do not grow at a significantly faster rate. Therefore the maximum rate of growth possible in the agricultural sector essentially determines the pace of growth of an agriculture dominated economy. In such an economy, if the industrial sector at some point of time starts growing much faster than the agricultural sector then not only would it increase its share in total output but it would also push up the overall rate of growth of the economy beyond the ceiling set by the agricultural growth rate. This is precisely what happens with an industrialization process and that is why there is a link between industrialization and modern economic growth.

In this section, you read about industrialization and economic growth. Now, answer the following questions in *Check Your Progress-2*.

Check Your Progress 2

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What is meant by the industrialization of an economy?

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2) What is the relationship between industrialization and the transition to rapid economic growth?

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2.4 THE INDUSTRY AND AGRICULTURE NEXUS

All agricultural production requires land, and there is a maximum amount of land that can be used for such production. Technological developments can, and have increased the effective quantity of land that is available. Nevertheless, the land required to produce output of some value in the agricultural sector is still typically many times larger than the land required for a factory capable of producing industrial output of equivalent value. Agricultural production, therefore,

cannot be multiplied in the same way as factory production can be. Further, industrial production is not dependent on the quality of the land in the way that agricultural production is. In industry, particularly manufacturing, the productivity of labour can be increased by using more and better machines. It is not so simple in agriculture. While technological developments can contribute to improving the productivity of any land, the inherent qualities of that land will still remain of major significance. Nature, thus, imposes a greater constraint on improving agricultural productivity.

Nature also constrains the range of produce that is available from the agricultural sector, again subject to some increase through scientific and technical development. This means that even if it were to be possible to raise the rate of growth of agricultural production to a level much higher than the growth rate of population, beyond a point that additional output would have no use. As people's incomes increase, the range of products they consume also tends to increase. No one, with his or her belly full, wants any more food, but would like to consume other things which cannot be produced by the agricultural sector. The increasing diversification of consumption accompanying increasing incomes, therefore, requires a corresponding change in the production structure, whereby the share of non agricultural products increases. This, in itself, implies to an extent an increase in the share of the industrial sector in output. In addition, the industrial sector is also capable of producing a far greater range of products than the agricultural sector – products that can be used to further produce products, or products that can be consumed. Indeed, many of the improvements in agriculture are themselves, dependent on products produced in the industrial sector (e.g., fertilizers, pesticides, tractors, harvesters.).

In countries with high densities of population, like India, there is another sense in which agriculture cannot be the leading sector of economic development. Given limits to the quantity of land and of the productivity of that land, there is a limit beyond which the agricultural sector cannot sustain employment. If gainful employment is to be provided to a large work force, expansion of non agricultural activities becomes crucial.

Thus, it is clear that even though the agricultural sector's product is not an exhaustible natural resource, its primary character does constrain it in such a way that its declining relative importance in the economy is more or less inherent to the process of rapid growth. A continuous decline of this kind fits in with the typical pattern of modern economic growth exhibited by developed countries in the past. However, in this typical pattern one also sees that while the non agricultural sectors become correspondingly more important over time, the leading non agricultural sector driving this process tends to be different in different phases. Initially it is the industrial sector which drives this process so that its share increases in output and employment. This is the period of industrialization. This is followed by a subsequent post industrialization stage where it is the services sector that increases its share, particularly in employment, at the expense of industry. The movement of the relative shares of the three sectors in output and employment accompanying the process of increasing per capita income can be described by the following figure (which shows it for employment).

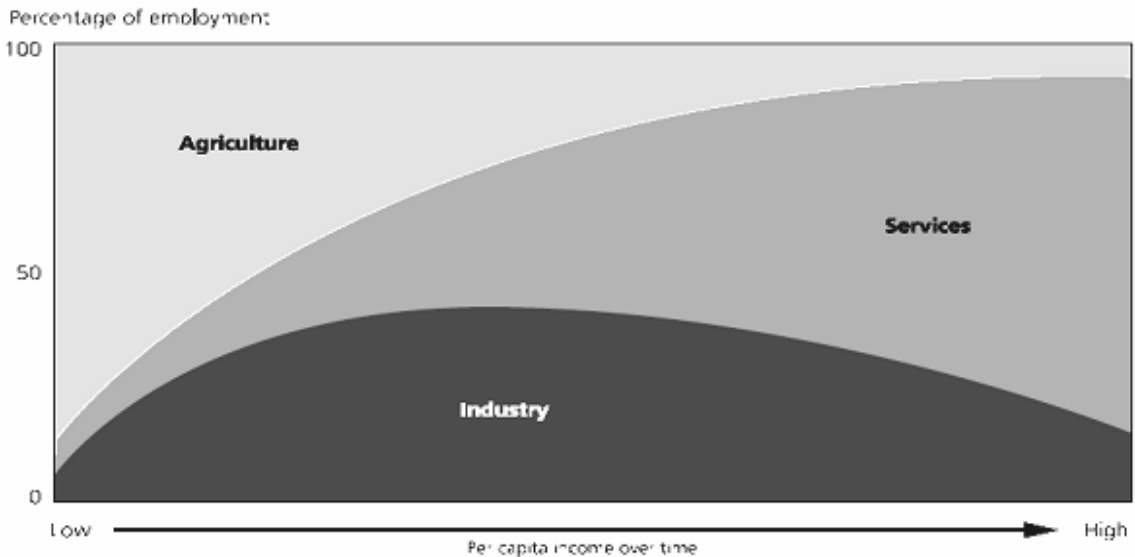


Fig. 2.1: The Changing Structure of Employment during Economic Development

There are various reasons why the services sector assumes great importance in the later stages of modern economic growth which we cannot go into here. Suffice to say here that the initial driver of the process is always industrialization, and the needs of an economy catered to by its industrial sector cannot be met by the services sector. The importance of industrialization for any country's economic development, therefore, remains. Critically important for a successful process of industrialization in an agrarian economy is the achievement of some breakthrough in agricultural productivity. Why that is the case may be understood as follows.

Whatever may be the level of industrialization achieved, complete substitution of agricultural products by products of the industrial sector is not possible. Specifically, a large part of the food requirement of the population and the raw material requirements of many industries will remain dependent on the agriculture sector. If industrialization involves the movement of a significant part of the workforce to non agricultural activities, those remaining in the agricultural sector have to become productive enough to be able to produce a surplus of food over their own requirement, sufficient to feed the non agricultural population. How can such a change in the employment structure happen unless labour productivity in agriculture improves? The rapid growth of industry also means a rapidly growing demand for raw materials produced by the agricultural sector (e.g., cotton). How can this demand be met if agricultural improvement does not happen? Crucially, how can both the demand for food and non food raw materials be met simultaneously, when the land constraint does not allow increasing the amount of land devoted to one without reducing that for the other?

Industrialization is also a process that requires large initial investments from which products and incomes flow in the future. Once an industrial sector is developed it can meet the requirements for financing such investment internally - from the income from past investments. But in the initial stages of industrialization these investments have to be financed by resources coming from outside the industrial sector, which means that the agricultural sector may have to generate the surplus for financing this investment. A similar scenario characterizes the issue of the market for the products of a rapidly growing industrial sector. Unlike what is possible in small scale agricultural production,

the producers in any large scale industry, typically, cannot consume or use more than a small fraction of the total volume of their own production. They need to find a market for this surplus product outside their own industries in those from whom they can acquire other products in exchange. When the industrial sector is developed and diversified, each industry may be able to find this outside market in other industries. That is, the different industries may serve as markets for each other. In the early stages of industrialization however, such markets have to be found outside the industrial sector and in a pre-industrial economy it is only the agricultural sector that can meet the need. Its ability to do so in turn depends on its productivity and growth.

So far, we have not brought foreign trade into the picture. It may appear at first sight that even if agricultural productivity cannot improve, an economy could still industrialize by importing the shortfall of agricultural products and exporting its surplus industrial products. However, it would require exceptional circumstances for a pre-industrial economy to develop, in a short period of time, such a pattern of trade. What is more likely is that it would initially need to export agricultural products, and obtain, in exchange, those industrial products (capital goods, etc.) required for development of its industrial sector. Thus, agriculture may also have to play the role of foreign exchange earner for enabling industrial expansion. Only at a later stage, when the industrialization process has proceeded some distance, could it become an exporter of mainly industrial products. Foreign trade, therefore, does not provide any escape from the requirement of improvement in agricultural productivity.

Thus, a low productivity, backward, primarily agrarian economy may need industrialization to achieve rapid economic growth. But to achieve this, it must be first able to make a breakthrough in the agrarian sector which would provide the necessary support to the industrialization process. The possibility of this breakthrough would lie in the fact that even though there are limits to raising the productivity of agriculture, a backward agrarian economy may be far below the maximum level possible at any point of time. A change in the agrarian context which would allow that gap to be bridged quickly, therefore, is a crucial precondition for successful industrialization.

In this section you read about the nexus between industry and agriculture. Now, answer the following questions in *Check Your Progress-3*.

Check Your Progress 3

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Distinguish between industrialization and post-industrialization.

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2) Why is prior development of agriculture important for industrialization?

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2.5 INDUSTRIALIZATION IN THE WORLD AND IN INDIA

The first country in the world to experience a successful process of industrialization was India's erstwhile colonial master, namely Great Britain. The British Industrial Revolution began in the last quarter of the 18th century, just as Britain's empire in India was being expanded under the aegis of the East India Company. Before that revolution marked the beginning of factory production, India and China had been the great manufacturing regions of the world and there was great demand for their products in Europe. Indeed, the East India Company first came to India to buy Indian manufactured products. It has been estimated that in 1750 roughly 25% of the world's manufacturing production took place in the Indian subcontinent. However, by the end of the 19th century, this share had come down to under 2%. During this period, India's per capita level of industrial production fell to a sixth of its initial level. In other words, India experienced in the 19th century a process that is quite the opposite of industrialization, and indeed has been termed de-industrialization. To an extent, at least this was the other side of Britain's industrialization process. The leading sector of the British Industrial Revolution had been the cotton textile industry. This industry had no prior existence in Britain where, traditionally, the woollen textile industry had been important, and was always heavily dependent on export markets. In India, on the other hand, the traditional hand spinning and weaving based cotton textile industry was the most important manufacturing sector. British industry was able to grow at the cost of India's manufacturing sector by capturing the market that was catered to by the traditional manufacturing activity in India. Yarn and cloth, produced in British factories at much lower cost, displaced Indian textile products not only outside India but also within. The latter was aided by the Indian market being deliberately kept open by the British rulers through the policy of free trade.

The destructive impact of British industrialization on India's traditional manufacturing sector continued throughout the 19th century. In the second half of the century, this was aided by the development of the railways. By connecting India's vast expanse to ports where foreign-produced goods first arrived, the

railways enabled the deeper penetration of British manufactures into the Indian market. However, with railway development providing the impetus, the mid 19th century also saw the beginning of modern factory production in India. The principal expression of this was the setting up of a number of cotton and jute textile mills from 1854 onwards by Indian and European businessmen. Thus, one can say that modern industry has a continuous history in India that stretches back over a period more than one and a half centuries long. During this period the industrial sector did not stand still. The growth of industrial output has been accompanied by a constant evolution of the industrial structure over time with the emergence of new industries and changes in the relative importance of existing ones. Technological developments taking place in the world have also, in one way or the other, regularly penetrated into the Indian industrial sector. Modern factory industry has also impacted on the older traditional manufacturing industry, transforming it in many ways. But, looked at in relation to its impact in transforming India from an agrarian to an industrial economy, the Indian experience stands out as one of the most stunted cases of national industrialization. This is true whether we compare India's experience with developed countries or with other important fellow developing countries, which, like India, had not experienced significant industrial development till the middle of the 20th century.

In the mid-19th century, much of the world was mainly agrarian. This was true for even the developed countries in our group, the United Kingdom being the solitary exception. In the United States in 1839, the agricultural sector's output was more than double that of industry, and even in 1870, 51% of its workforce was engaged in agriculture. The latter figure for Germany and France was also close to 50%. Japan, at the same time, had more than 70% of its workforce in agriculture, and Italy over 50%. In other words, seen at least in terms of the time of birth of modern factory industry, India was not a particularly late entrant into the industrialization process. At that time, the industrialization process of most countries had either not begun or was in an incipient stage.

While the decline of agriculture's share in output and employment has been consistently maintained, many countries have already passed the peak of the degree of industrialization of their output and employment. Table 2.1 does not necessarily show the peak values for the industrial sector's share in output and employment for all countries, but only the peak and current values observable in data series that extend over the last half century, or so. But it is adequate to establish that India has not come even remotely close to traversing the distance others have managed in this regard. The maximum share of industry in output of all the other 11 countries in the group had, at the least, reached 35% and in most cases, including the late industrializers, it had exceeded 40%. In India the same share never touched even 30%, and in addition shows no signs of even heading in that direction. The comparative picture of the degree of industrialization of employment between developed and developing countries is a replication in inverted form of the story of agricultural employment, including India's laggard position.

Table 2.1: Indicators of Industrialization of Selected Countries in Selected Years

Country	Industry, value added(% of GDP) (WDI 2007)				Employment in industry (% of total employment) (WDI 2007)				Share in Civilian Employment of Industry (%)(OECD)			
	%	Year	%	Year	%	Year	%	Year	%	Year	%	Year
United Kingdom	43.08	1971	26.19	2005	37.2	1980	22	2005	48.4	1956	22	2006
United States	34.51	1971	21.99	2004	30.8	1980	20.6	2005	37.3	1956	19.8	2006
France	35.09	1972	20.92	2005	35.9	1980	24.6	2004	39.5	1973	21.4	2006
Italy	40.24	1974	26.86	2005	37.2	1980	30.7	2005	39.7	1971	29.8	2006
Germany	46.43	1971	29.68	2005	40.3	1991	29.7	2005	49.3	1970	30.5	2006
Japan	45.55	1973	30.15	2004	35.3	1980	27.9	2005	37.2	1973	28	2006
China	48.52	1980	47.54	2005	22.4	1988		2005				
Indonesia	46.81	2001	45.77	2005	19	1997	18	2005				
Korea, Rep.	42.62	1991	40.33	2005	36	1991	26.8	2005	36.8	1991	26.3	2006
Brazil	45.88	1987	38.41	2005	25.4	1983	21	2004				
Mexico	38.00	1987	25.93	2005	27.8	1990	25.7	2005	27.4	1990	27.4	2006
India	28.12	1995	27.33	2005			17.6*	2005				

Source: World Bank, World Development Indicators, 2007 (WDI 2007), and OECD.Stat (<http://www.oecd.org>);

* Based on NSS data

In this section you read about industrialization in the world and the Indian experience in expansion of industry and growth of industrialization. Now *Check Your Progress-4*.

Check Your Progress 4

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) Why can we say that industrialization in India has been limited in comparison to other major countries?

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2.6 INDUSTRIAL DEVELOPMENT IN INDIA AFTER INDEPENDENCE

The overall record of Indian industrialization could be divided into two parts, with independence from British rule serving as the dividing line. Indian industrialization was, at no stage, a priority for the imperial government that was focused on ensuring that India played its key role in propping up the British imperial order. Therefore, the industrialization process lacked the crucial backing of the state in its formative period. Therefore, the industrial development in colonial India remained extremely limited. Between 1900-01 and 1946-47, the secondary sector's output grew at barely 1.5% per annum. At independence, India was still a primarily agrarian economy, with the agricultural sector accounting for over half the output and three-quarters of total employment. The modern industrial sector, even after nearly a century of development, accounted for only a small part of the economy. It also co-existed with a surviving traditional manufacturing sector (or its modified version) that was as large in terms of its contribution to national output, and accounted for a larger share in employment. These are shown in Table 2.2.

Table 2.2: Structure of India's GDP, 1948-49 (Percentage to Total GDP)

Primary	Agriculture	Secondary	Manufacturing	Registered Manufacturing	Unregistered Manufacturing	Tertiary
53.7	50.4	16.4	12.5	6.0	6.4	29.9

Source: S. Sivasubramanian, India's National Income in the 20th Century (2000), Appendix Table 9 (d).

At independence, India's industrial sector was not only small but, also, very narrow. The limited extent of industrial development in the colonial period expressed itself in lop sided development where there existed important gaps in the production structure, particularly in the case of capital goods and key infrastructure sectors.

After independence however, the situation was different and promotion of industrialization became an explicit element of state policy. In the history of Indian industrialization after independence, the nature of the economic policy regime in place makes for a distinction being made between the pre and post 1991 periods. The economic policy of the Indian State was obviously not frozen between independence and 1991. The central defining features of the pre 1991 strategy were the imposition of restrictions on international economic transactions so as to maintain a relative autonomy of India's economy from the international economy, and the accordance of a major role to the state, both as a producer (public sector production) and as a regulator of private economic activities. Increasing openness of the economy to commodity and capital flows from outside, and the granting of greater freedom to the private sector and the operation of market forces, are instead the hallmarks of post-1991 policy.

2.6.1 Industries in India

Some of the major industries during the industrialization process in India are:

- i) **Iron and Steel:** after independence, special attention was paid to the development of the iron and steel industry. The second Five Year Plan gave top most priority and during the period three large scale steel plants were established in the public sector at Bhilai, Rourkela, and Durgapur. In the private sector also, two plants namely, TISCO and IISCO were taken into hand.
- ii) **Jute Industry:** the jute industry was one the oldest industry in India. Most of the jute industries were found in West Bengal. After partition major jute growing industries went to Bangladesh. The production of jute textile increased from 837 thousand tonnes in 1950-51 to 1392 thousand tonnes in 1980-81 and further to 1430 thousand tonnes in 1990-91.
- iii) **Textile Industry:** the textile industry is the largest industry in modern India. It contributes 20 percent of total industrial output and provides employment to about 17 million people. It also contributes 30 percent to total value of exports.
- iv) **Sugar Industry:** the sugar industry is also an important industry in India. Sugar industries were initially established in Bihar and Uttar Pradesh. However, in the last three decades, the industry has developed at a faster rate in Maharashtra, Andhra Pradesh, Karnataka, and Tamil Nadu. A significant fact about the sugar industry in India is that most of the sugar mills are in the cooperative sector.
- v) **Cement Industry:** the manufacture of cement was started in Madras in 1904. This industry operates mainly in the private sector. In 1981, government allowed private companies to establish mini industries. Most of the cement plants in India are located in Andhra Pradesh, Karnataka, Madhya Pradesh, Gujarat and Rajasthan.
- vi) **Engineering Industry:** in the Second Five Year Plan which laid emphasis on industry, a large part of investment in the industrial sector was earmarked for engineering establishments. As a result massive investments were made in the heavy and capital goods industries. There industries are found both in the public and private sectors. Some of these are: The Bharat Heavy Plate and Vessels Ltd. (BTTPV), Bharat Pumps and Compressors Ltd., Triveni Structurals Ltd., Bharat Wagon and Engineering Co. Ltd.
- vii) **Food Processing Industry:** India is the world's second largest producer of food, next to China. However, food exports accounts only 1.5 percent of international food trade. There is scope for large investment in food and food processing industries. Government is now encouraging private investment in the food processing sector. India's food processing sector covers fruit and vegetables; meat and poultry, milk and milk products, alcoholic beverages, fisheries, plantation, grain processing, etc. States like Punjab, Andhra Pradesh, Madhya Pradesh, Maharashtra, and Haryana are doing better in the food processing sector.
- viii) **Small Scale and Cottage Industry:** small scale and cottage industries play an important role in India's economy. This sector accounts for 35 per cent of the value added by the entire manufacturing sector, 6.9 per cent of the net domestic product and 30 per cent of the country's exports. The Second Five

Year Plan emphasises the role of small scale and cottage industries on the following grounds

- i) generation of employment opportunities
- ii) an equal distribution of national income
- iii) mobilization of capital
- iv) mobilization of entrepreneurial skills
- v) regional dispersal of industries.

2.6.2 Industrial Growth Trends

The pace of expansion of the Indian economy and of industrial production after independence was considerably more rapid than in the first fifty years of the 20th century. But post-independence industrialization in India was marked by an inability to achieve prolonged spells of rapid growth. Apart from the year to year fluctuations in growth, there were also different trends in different phases.

As Table 2.3 indicates, three phases are distinguishable in the post independence and pre liberalization period. The first phase corresponding to, roughly, the first three five year plans saw an acceleration in industrial growth which was rudely halted in the mid-1960s in the background of two successive droughts and military conflicts. Industrial growth slackened and then began a period that has been referred to as the decade of industrial stagnation. Industrial growth started reviving from the late 1970s and the next decade, again, saw reasonably rapid growth. This positive growth trend appeared initially to receive a further impetus from liberalization in the early 1990s. However, in the second half of the 1990s, industrial growth again slackened for a period of about six years before rebounding from 2003-04 onwards. This growth has however again been halted in the aftermath of the global economic crisis, with industrial growth in 2008-09 being reduced to just 3.8% and manufacturing growth to a mere 2.4%. In other words, the unstable nature of Indian industrial growth has survived the transition to a liberalized economy.

Table 2.3: Annual Average Rates of Growth Real GDP in India (Per cent per annum)

Sector	1950-51 to 1964-65	1965-66 to 1979-80	1980-81 to 1990-91	1991-92 to 1996-97	1997-98 to 2002-03	2003-04 to 2007-08
Mining & Quarrying	5.59	3.33	7.97	3.87	3.97	6.02
Manufacturing	6.72	4.41	5.82	8.10	4.07	9.11
Electricity, Gas & Water Supply	11.51	7.89	8.58	7.68	4.50	5.74
Construction	6.72	2.80	4.41	3.37	6.92	13.68
Industry	6.75	4.04	5.87	6.58	4.71	9.69

Source: Central Statistical Organization, National Accounts Statistics (CSO, NAS)

It can be also seen that the manufacturing sector's growth trends mirror the overall trend observed since independence. The electricity sector on the other hand generally grew faster in the early post independence period, with its growth being

substantially slower after liberalization. Construction activities, on the other hand, appeared to have experienced accelerated growth since the mid 1990s, with this growth being exceptionally high in the most recent period. The parallel movements in the growth of manufacturing and industry as a whole is not surprising in view of the fact that manufacturing has always accounted for a large part of the industrial sector. However, particularly since the mid 1970s, its weight in the industrial sector has been declining – it accounted for over 75 per cent of industrial value added in 1950-51 and about 73 per cent in 1974-75, but this share came down to only 55 per cent by 2007-08. In recent years, the segment within industry which has raised its share considerably is construction. In the case of electricity, on the other hand, a consistent trend of increase in its share, which went up from 1.64 per cent in 1950-51 to 10.90 per cent in 200-01, has been sharply reversed so that its share came down to just 5.97 per cent in 2007-08.

2.6.3 Structural Change in Manufacturing Output

The one change that did unambiguously accompany the growth of India's manufacturing sector after Independence was that structure of industry. Though the process was not entirely a linear one, the general direction after Independence was towards greater diversification in manufacturing activities, and a decline in the relative importance of relatively simple, technology-based, light manufacturing activities. Much of this change, which meant that India's industrial sector came to be in a position to produce most manufactured products, had been achieved before the onset of liberalization.

The organized or, registered manufacturing sector reflected the structural change to a greater extent than unregistered manufacturing. Much of its growth, after Independence, was accounted for by industry groups which had just about emerged towards the end of the colonial period. As shown in Table 2.4, manufacturing industries accounting for over 80 per cent of the manufacturing value added in 2007-08 had a share of under a third in 1950-51. The most dramatic decline in relative importance was in the case of textiles, the largest segment at independence. This decline in the relative importance of textile industries in organized manufacturing in part however was the result of a major shift in textile production (of fabrics) from organized textile mills, mainly to what is called the powerloom sector, which mostly, consists of unorganized sector units. At Independence, the major part of cloth production came from mills. By the end of the 1980s the powerloom and handloom sectors came to account for a share of 85 per cent and mill production of cloth was barely half of the levels in the 1950s.

Table 2.4: Composition of Gross Value Added of Registered Manufacturing in India at Current Prices (Percentages to Total)

Manufacturing Industry	1950-51	1990-91	2007-08
food products	15.62	8.10	6.37
beverages and tobacco products	2.84	2.37	4.03
textile products	42.60	13.47	6.67
leather & fur products	0.81	0.89	0.40

wood and wood products, furniture, fixtures, etc.	0.81	0.39	0.27
paper and printing, etc.	5.07	4.27	2.04
Total	67.75	29.50	19.80
rubber, petroleum products, etc.	2.64	8.22	10.34
chemical and chemical products	7.30	14.63	20.57
non-metallic products	3.45	5.47	4.47
basic metals	4.67	12.85	17.88
metal products and machinery	3.04	11.20	8.25
electrical machinery	0.81	7.01	7.46
other manufacturing	2.23	3.47	4.53
transport equipment	7.91	7.65	6.69
Total	32.05	70.50	80.20

Source: CSO, NAS

Despite the shift in cloth production to the unorganized sector, the relative share of traditional industries has declined even in the unorganized manufacturing sector. Industries like textiles, food products, and wood products constituted the large bulk of the sector at independence, but by now more than 56 per cent of the unorganized manufacturing output is accounted for by other industries. In other words, structural change has occurred even in unorganized manufacturing and in the same direction as in the organized segment.

a) *Organized and Unorganized Sectors*

The organised sector comprises of enterprises for which the statistics are available regularly from the budget documents or reports, annual reports in the case of Public Sector, and through the Annual Survey of Industries, in the case of registered manufacturing. On the other hand, the unorganised sector refers to those enterprises whose activities or collection of data is not regulated under any legal provision and / or which do not maintain any regular accounts. Non availability of regular information has been the main criteria for treating the sector as unorganised. This definition helps to demarcate organised from the unorganised. For example, the units not registered under the Factories Act, 1948 constitute unorganized component of manufacturing as these are not regulated under any Act. In the case of sectors like trade, transport, hotels and restaurants, storage and warehousing, and services, all non public sector operating units constitute the unorganised sector. However, the enterprises covered under the Annual Survey of Industries do not fall under the purview of the unorganised sector.

Within the industrial sector, the unorganized component is relatively large only in manufacturing and construction activities, its share in the other two segments being somewhat marginal though increasing in mining and quarrying. In construction, typically, half to more than half of the domestic product has been generated by unorganized construction activities. Within the unorganized industrial sector, the size of the construction segment seems to be fast catching

up with that of manufacturing which till now has been the most important component.

At Independence, as mentioned earlier, the unregistered manufacturing sector was larger than the registered manufacturing sector. As far as output distribution is concerned, the picture steadily changed thereafter as the registered segments share increased (Table 2.5). Currently, the registered segment's value added is nearly two and a half times that of unorganized manufacturing. This reflects a deep imbalance within the manufacturing sector since it is unregistered manufacturing which employs the major part of the industrial labour force. Unregistered manufacturing also accounts for a large part of the increment in manufacturing employment. Organized manufacturing employment, on the other hand, has been stagnant for a long time.

Table 2.5: Distribution of manufacturing Value Added between Registered and Unregistered Segments (Percentage Shares)

Manufacturing Segment	1950-51	1960-61	1970-71	1980-81	1990-91	2000-01	2007-08
Registered	46.78	51.35	56.52	55.99	65.07	66.33	69.29
Unregistered	53.79	48.95	43.46	44.01	34.93	33.67	30.71

Source: CSO, NAS

b) Public and Private Sectors

At Independence, there were very little industry established in the Public Sector. The post-Independence strategy, however, accorded the public sector an important role in the development of the certain key industries, including infrastructure industries, and this set the stage for an expanding public sector presence in industry. In the initial period after Independence, this was mainly public investment driven and did not involve nationalization of industries. The growth of public investment, however, slipped after 1965 but the period immediately succeeding its deceleration also saw the high tide of nationalization. This process covered, apart from banks and general insurance, the mining industries and the oil sector. Manufacturing activity was largely excluded from the ambit of nationalization. However, there were government takeovers of private companies in the textile and engineering industries, mainly of those that had turned chronically sick, a process that continued up to the early 1980s. As a result of all of these, the public sector presence in the industrial sector increased more or less consistently before liberalization, in all segments of industry, though it was in the mining and electricity sectors that this presence came to be an overwhelming one (See Table 2.6). Manufacturing and construction remained largely the domain of private sector units. After liberalization the trend of increasing public sector share was been reversed in all segments of industry as the focus shifted to privatization.

Table 2.6: Share of Public Sector In Output of The Industrial Sector (Percentage)

Industry Segment	1960-61	1970-71	1980-81	1990-91	2000-01	2007-08
Mining & Quarrying	10.73	25.38	73.74	87.59	74.81	76.66
Manufacturing	2.61	9.53	13.11	20.23	12.48	13.08
Electricity, Gas & Water Supply	73.63	90.85	56.89	116.71	105.70	101.21
Construction	7.72	7.81	16.21	15.99	14.63	8.63
Industry	6.05	14.06	20.90	33.74	27.12	22.88

Source: CSO, NAS

Note: The more than 100% share of the public sector in the electricity sector in some years is made possible by the use of different methods by the CSO to calculate the value added in such activities for the economy as a whole, and for the public sector. Obviously the actual public sector share cannot exceed 100% and the figures shown in the table should be taken as showing the broad trend in these shares rather than their precise values.

In this section you read about industrial development in India after independence. Now answer the following questions in *Check Your Progress-5*.

Check Your Progress 5

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

1) What are the two main features, one negative and the other positive, of Indian industrial development since Independence?

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2) Why does the rising share of the organized sector in manufacturing sector output reflect an imbalance?

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2.7 CAUSES OF INDUSTRIAL BACKWARDNESS IN INDIA

We have seen the limited nature of India's industrialization and how industrial growth in India after independence has been characterized by instability. This instability has remained a persistent feature, even though many other things in the context of industrialization have changed in a major way over the six decades after Independence. Let us briefly list these changes between the early post independence period and the current phase of the Indian economy.

- i) At the time of Independence, a highly unstable and slow growing agricultural sector was the major sector of the economy. The industrial sector in comparison produced only 30 per cent of the output produced by agriculture. By now, the services sector, which grew steadily and at a very high rate, replaced agriculture as the largest sector of the Indian economy. The industrial sector, too, produces one and a half times what agriculture produces. Within the manufacturing sector, significant change has occurred in the structure so that industries, like the textile industries and food products industries which are dependent on raw materials produced by the agricultural sector, have declined in relative importance.
- ii) At the time of Independence, India's savings rate and therefore, its capacity to undertake the investments required by the industrial sector was very limited – savings, as a percentage of GDP was under 10 per cent. At the same time investments were also very critical in view of the narrowness of the industrial sector – given the inter-linkages between industries the growth of many industries depended on others being able to grow correspondingly to provide the necessary inputs and capital goods. Most of the gaps in the industrial structure were in heavier industries and infrastructure industries which required large investments. In contrast, today we have a situation where, not only is the industrial structure much broader, India's savings and investment rate have touched historically high levels, close to 35 per cent.
- iii) After Independence, the economic policy adopted by the Indian state involved a number of restrictions on the private sector and the free play of market forces, including restrictions on imports and foreign investment. After liberalization there has been a change in the opposite direction.

The subject of the reasons for India's persistent industrial backwardness is a more controversial one. In the literature on Indian industrialization one can find many different explanations being offered at different points of time. One kind of explanation, which has also been a justification for liberalization, laid the blame for India's industrial difficulties after independence on the doors of the restrictive economic policy adopted after independence. It was argued that this thwarted competition and generated inefficiencies in the industrial sector, and did not allow Indian industry to take advantage of export markets in the manner that other countries in East and South East Asia did. Two other shortcomings at the level of policy may, instead, offer more reasonable explanations for the long run limitations in Indian industrialization – these are the failures on the agrarian front, and in sustaining public investment growth.

Earlier, we mentioned the importance of agrarian change for industrialization. In India the kind of agrarian breakthrough typically associated with industrialization never happened. In the colonial period, the agrarian sector had been the principal base for India's exports, which financed not merely its imports of industrial products, but helped maintain a recurrent export surplus. The agrarian sector had also provided a substantial part of the state revenue for a long time and financed the unilateral transfer of tribute from India to Britain. The potential that had then existed for utilizing such exports and the surplus for expanding industry was no longer available after independence.

There are many ways in which agrarian backwardness held back industrialization, some more important in some phases than in others. One important way that has been of a long term nature is the holding back of the development of a large domestic market for industrial products. In India, since a large part of the population derives its livelihood from agriculture, low average incomes coupled with inequality in the distribution of agricultural income have meant the exclusion of a large part of the population from the market for industrial products. The consequent narrowness of the domestic market has had two further implications. One is that it has not adequately provided the base on which exports of manufactured products could have been developed over time. Second, the dependence of the industrial sector on a narrow market provided by the relatively well-to-do has also made the industrial structure more biased towards capital intensive production than it need have been, since the rich demand relatively more of such products. This has reinforced the market constraint since large scale employment in industry, which could have created an internal market within the industrial sector, has not materialised. These difficulties associated with agricultural backwardness still persist. Therefore, despite the fact that relative to industry and services the importance of agriculture in total output may have declined, the agricultural sector may still hold the key to a successful industrialization process in India.

Investment, on one hand, is an expenditure which creates demand for the products produced by others. At the same time, investment also creates the capacity to produce and supply products to others. The difference between private and public investment lies in their motivation, and this makes for complementarities between them. Private investment is undertaken only in expectation of a return or profit, and will be forthcoming only when the investor expects a reasonable return within a reasonable time. Private investment, therefore, tends to be less in many areas where large investments with low returns and long gestation periods are required. These are characteristic features of many infrastructure sectors in any economy, and even of some heavier manufacturing industries in the early stages of industrialization. These sectors are however critical for industrial growth and deficiencies in them also hinder private investment in industries dependent on them for supply of necessary inputs. Inadequate infrastructure can not only limit the quantity of production possible, it can also increase the costs of production of industrial products – which also limits their competitiveness in international markets. Profit oriented private investment is also susceptible to being depressed if investors do not anticipate that there will be adequate demand for the products that would eventually flow from such investments. Public investment, in such circumstances, can generate the demand for a wide range of industries, which then induces private investment in them. Public and private investments are,

therefore, complementary and it is extremely difficult for a process, driven entirely by private investment, to sustain itself over long periods of time.

2.7.1 Causes of Industrial Sickness of Small Scale Industries (SSIs)

The small scale industries play an important role in industrial development. However, many of them are victim of industrial sickness. A few important causes of sickness are listed.

- 1) Lack of finance: finance is important for opening, maintaining, and sustaining industries. Lack of finance, along with other factors like inefficient working capital management, absence of costing and pricing, planning, and budgeting also affect SSI's.
- 2) Bad production policies: the wrong selection of sites, production, inappropriate plant and machinery, lack of quality control, and poor research and development.
- 3) Marketing: the third cause of sickness is related to marketing. The poor sales techniques and branding also affect the proliferation of SSI's.
- 4) Human resources: one of the important reasons for sickness of SSIs is non availability of skilled manpower. Even if available, there is no provision for human resource development.

In India however, the government has not been able to ensure adequate levels of public investment for supporting the nation's industrialization effort. The only period in which public investment grew somewhat rapidly was during the first three Five Year plans. Once this growth slipped in the mid 1960s, it never really recovered and this problem of inadequate public investment plagues the Indian economy till today. Inadequate public investment, in turn, has also reinforced the agrarian constraint because some part of this investment is that which contributes to improving agricultural productivity (e.g., in irrigation).

In this section you read about the dynamics of industrial movement in India. Now answer the following question in *Check Your Progress-6*.

Check Your Progress 6

Note: a) Write your answer in about 50 words.

b) Check your answer with possible answers given at the end of the unit.

- 1) Give two reasons why India may still need industrialization.

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2.8 LET US SUM UP

Though modern industry made its first appearance in India a long time ago, India's industrialization has remained an incomplete one. Very limited industrial development happened in the colonial period, since government policy remained oriented to a different direction. After Independence, a conscious effort was made towards promoting industrialization. While this succeeded in raising the level of industrial development much beyond what had been possible under colonialism, there were also critical shortcomings in policy which prevented the optimum level performance. As a result, industrial growth took place in fits and starts and its transformative impact on the Indian economy remained limited. Liberalization of the Indian economy since the early 1990s was considered the panacea for India's industrial woes. But liberalization does not address either of the two issues that have been highlighted above as the major constraints on Indian industrialization. Indeed, it makes the problems more acute even while increasing their significance. At the same time, Indian industry is exposed to foreign competition from countries where conditions are more favourable for industrial production. In such circumstances, a successful and widespread industrialization process, perhaps, requires some rethinking on the policy front.

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2.10 CHECK YOUR PROGRESS - POSSIBLE ANSWERS

Check Your Progress 1

- 1) The industrial sector in any economy encompasses the activities of mining and quarrying, manufacturing, production and distribution of electricity, gas and water, and construction. Like the agricultural sector, and unlike the tertiary or services sector, it is chiefly a producer of goods through further processing of primary products or manufactured inputs.

Check your Progress 2

- 1) Industrialization is a process of rapid growth of per capita income accompanied by an increasing share of the industrial sector in the economy's output and employment. It is historically associated with the increasing use of machinery, or the mechanization of production.
- 2) Rapid economic growth implies increase in output of an economy at a high pace. Industrialization is associated with the transition of an agrarian economy to such a trajectory because it lifts the maximum possible level of growth of output beyond the levels previously set by the agricultural sector's growth.

Check your Progress 3

- 1) Industrialization represents the early stage of economic development when the importance of the industrial sector in the economy increases at the expense of the agricultural sector. Post-industrialization is a later stage when the relative importance of the industrial sector declines after reaching a peak and the services sector gains in importance.
- 2) A prior development of the agricultural sector is important for industrialization because: a) agriculture has to provide food for the growing non agricultural population; and, b) it has to, in the early stages of industrialization, provide a corresponding supply of raw materials for the expanding industrial sector, a surplus for investment, and a market.

Check your Progress 4

- 1) We can say that industrialization in India has been limited in comparison to other major countries because the maximum levels attained by the share of the industrial sector in total output and employment in India are considerably lower than the peak levels of these in case of other countries.

Check your Progress 5

- 1) The main negative feature of industrial development in India after independence has been the instability in its growth. The principal positive feature on the other hand has been the structural change and increasing diversification experienced by the sector.
- 2) The rising share of the organized sector in manufacturing output reflects an imbalance because the overwhelmingly and increasingly larger part of manufacturing employment is in its unorganized rather than organized component.

Check your Progress 6

- 1) India may still need industrialization for the twin purposes of providing non agricultural employment opportunities to its large and growing workforce, and to supply to its population, manufactured consumption goods whose consumption levels are presently very low. Both of these are critical for raising the standards of living of the vast majority of Indians to even reasonable levels.